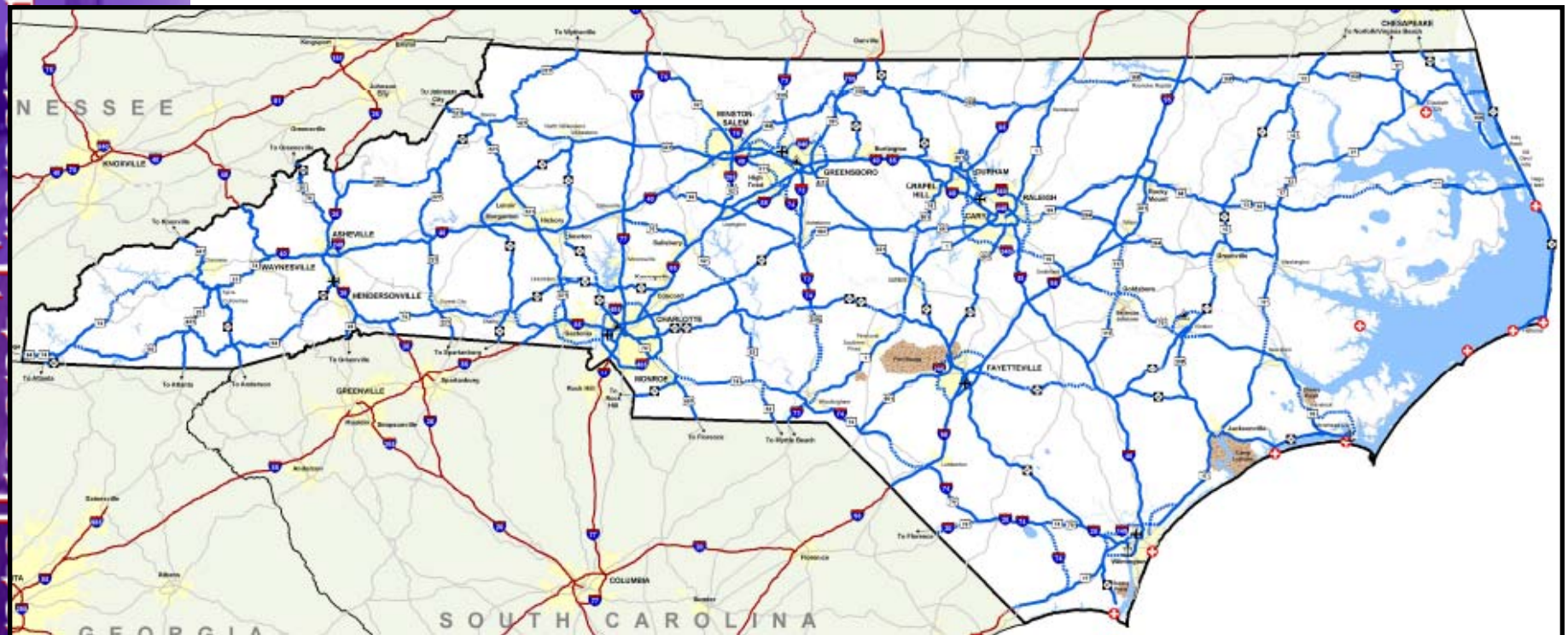# Performance Management
Systems Operation Along Strategic Highway Corridors

Kelly Damron, PE

April 10, 2007

New Focus in DOT System Operations & System Preservation
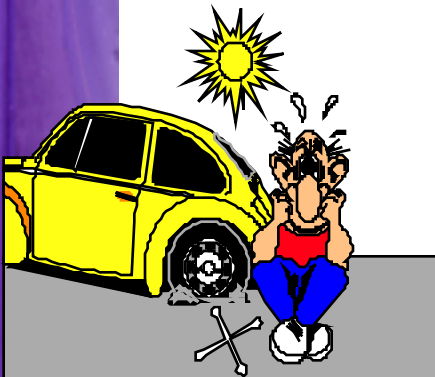
Strategic Highway Corridors

Sources of Congestion

Special Events (5%)

Poor Signal Timing (5%)

Bad Weather (15%)

Bottlenecks (40%)

Work Zones (10%)

Accidents and Disabled Vehicles (25%)
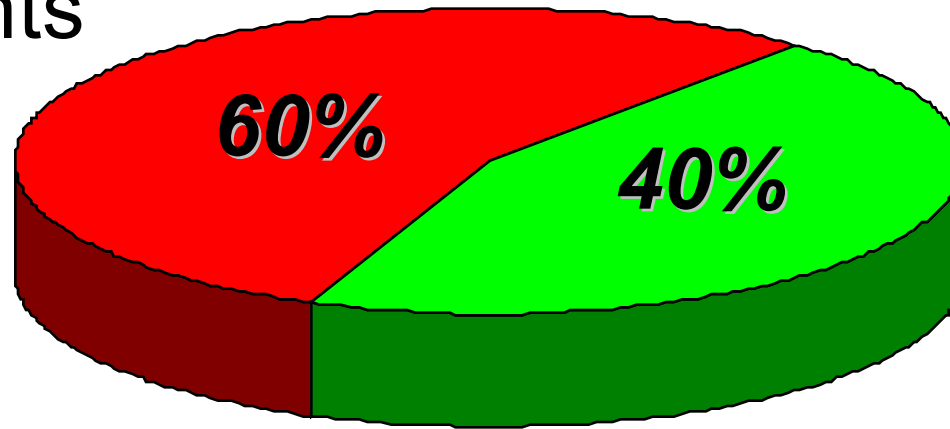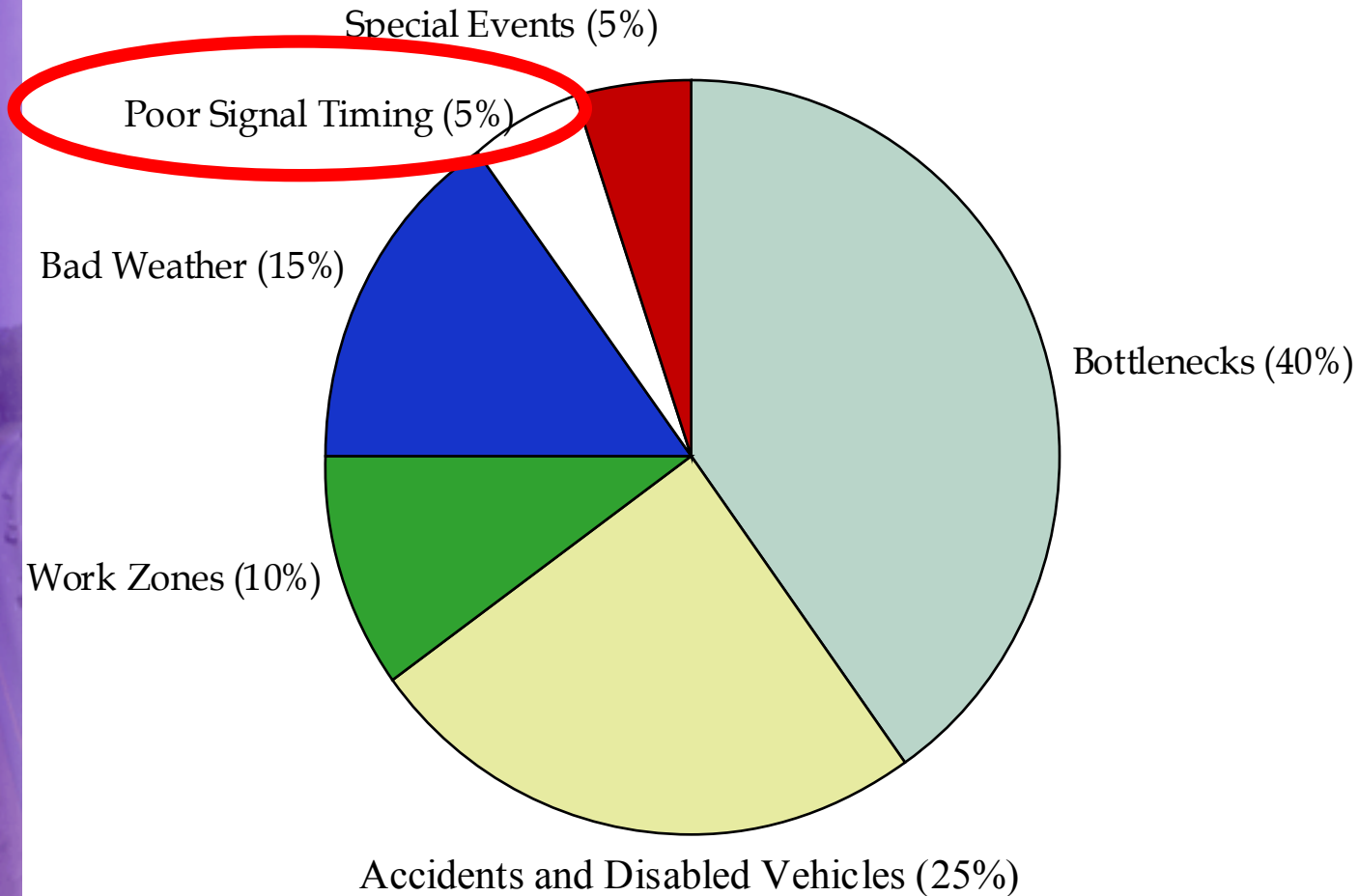
Lots of Performance Measures

- Bridges

- Pavement

- Traffic

Want <u>outcome</u>; sometimes have to settle for output.

Lots of Performance Measures

Intelligent Transportation Systems

Functional Work Group Worksheet

Element: Bridge Maintenance and Preservation

Asset: Deck

Activities: Deck Maintenance

Condition Indicator: Condition Rating of less than or equal to 6.

Performance Measure: Condition Rating by Square Feet of Deck

LOS Category	LOS Description
A	15% or less of condition ratings below 6.
B	Between 15.01% and 20% of condition ratings below 6.
C	Between 20.01% and 25% of condition ratings below 6.
D	Between 25.01% and 30% of condition ratings below 6.
F	30% or more of condition ratings below 6.

	Statewide	Regional	Subregional		Division	County
Performance Target	B	B	C		NA	NA
Assessment Method	BIR	BIR	BIR		BIR	BIR
Does Assessment Data exist	Y	Y	Y		Y	Y
Desired level of survey	Y	Y	Y		Y	Y
Does Feature Inventory exist	Y	Y	Y		Y	Y
Desired level of Feature Inventory	Y	Y	Y		Y	Y

Glossary

Performance Target - A performance target is a goal or objective for the condition of assets or the road system.

Assessment Method - The method recommended for appraising the asset or activity, I.e. Randon Sample, % of total, 100% assessment, etc

Does Assessment Data exist - Does the data exist and at what level.

Desired level of survey - Should the assessment be conducted down to the various management levels.

Does Feature Inventory exist - Does the numerical count of the asset exist in detail and at what management level.

Desired level of Feature Inventory - Should detail information exist for the numerical count of the asset and at what management level.

Comments:

Lots of Performance Measures

Vertical sidebar text: Intelligent Transportation Systems

Functional Work Group Worksheet

Element: Traffic & ITS

Asset: Highway

Activities: Freeflow

Condition Indicator: Road Closures

Performance Measure: Incident Clearance Times

6/14/2004
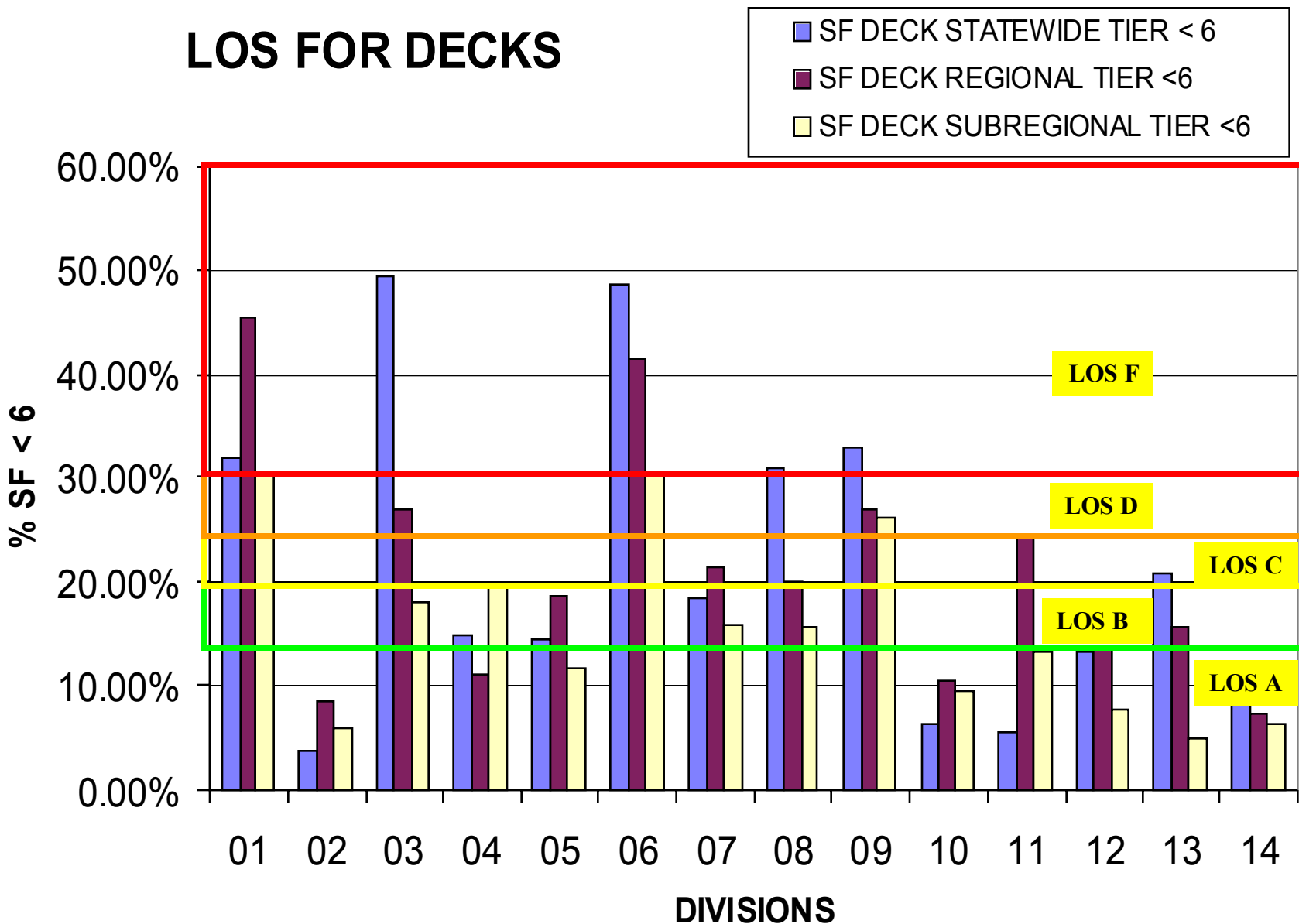**T-8**

LOS Category	LOS Description
A	90% of lane blocking incidents cleared within 30 minutes
B	90% of incidents cleared in less than 60 minutes
C	90% of incidents cleared in less than 90 minutes
D	90% of incidents cleared in less than 4 hours
F	90% of incidents cleared in more than 4 hours

	Interstates		Primaries	Subregional	Division	County
	IMAP Areas	Non-IMAP				
Performance Target	A	C	C	NA	NA	NA
Assessment Method	TIMS & IMAP DB	TIMS	TIMS	NA	TIMS	NA
Does Assessment Data exist	Some	Some	Some	NA	Some	NA
Desired level of survey	Annual	Annual	Annual	NA	YES	YES
Does Feature Inventory exist	YES	YES	YES	NA	YES	YES
Desired level of Feature Inventory	YES	YES	YES	NA	YES	YES

Cleared = All lanes open
Time = From occurance to all lanes open.
IMAP DB = IMAP Database
Note: Data will only reflect incidents entered into TIMS.

Lots of Performance Measures

LOS FOR DECKS

Legend:
- ■ SF DECK STATEWIDE TIER < 6
- ■ SF DECK REGIONAL TIER <6
- □ SF DECK SUBREGIONAL TIER <6

Y-axis: % SF < 6 (0.00% to 60.00%)

X-axis: DIVISIONS (01–14)

LOS F, LOS D, LOS C, LOS B, LOS A

Intelligent Transportation Systems

Signal Performance Measures

- Signal <u>System</u> Operations
- Signal Routine Maintenance
- Signal Emergency Response

Signal System Operations

Functional Work Group Worksheet

Item	Measure	Weight	Total	Actual	Points
Monitor Signals in Signal Systems	Days **not** Monitored/Total Days	25	365		
System Detectors are Operational	Days **not** Operational/Total Days	25	365		
Evaluate Timing Plans and Event Schedules	At least every 18 months	50			

	Total	
	LOS	

System logs can produce these measures.

Actual = # of Items Performed that Met Measure

Points = Actual/Total * Weight

One year = 365 days

C	80 - 89 %
D	75 - 79%
F	Less than 75%

	Statewide	Regional	Subregional	Division	County
Performance Target	B	B	C	NA	NA
Assessment Method	Sys Logs	Sys Logs	Sys Logs	Sys Logs	Sys Logs
Does Assessment Data exist	YES	YES	YES	YES	YES
Desired level of survey	Annual	Annual	Annual	Annual	NO
Does Feature Inventory exist	YES	YES	YES	YES	YES
Desired level of Feature Inventory	YES	YES	YES	YES	YES

Signal Routine Maintenance

Functional Work Group Worksheet

T-6   6/14/2006

Element: Traffic & ITS

Asset: Traffic Signals

Item	Measure	Weight	Total	Actual	Points
Repair Bad Loops	15 Days	25			
Perform Preventative maintenance	Every 6 Months	25			
Conflict Monitor Certification Date	Every 12 Months	50			
				Total	
				LOS	

Total = Total # of Items Performed
Actual = # of Items Performed that Met Measure
Points = Actual/Total * Weight

| | | | | | F | Less than 75% |

	Statewide	Regional	Subregional	Division	County
Performance Target	B	B	C	NA	NA
Assessment Method	SI & Logs	SI & Logs	SI & Logs	SI & Logs	SI & Logs
Does Assessment Data exist	YES	YES	YES	YES	YES
Desired level of survey	Annual	Annual	Annual	Annual	Annual
Does Feature Inventory exist	YES	YES	YES	YES	YES
Desired level of Feature Inventory	YES	YES	YES	YES	YES

SI = Signal Inventory Program
Logs = System Logs

Signal Emergency Response

Functional Work Group Worksheet

T-7   6/14/2006

Element: Traffic & ITS

Asset: Traffic Signals

Item	Measure	Weight	Total	Actual	Points
Respond to Trouble Calls	4 hours	40			
Replace Failed Signal or Ped Display	24 hours	10			
Repair Knockdowns	8 hours	50			
				Total	
				LOS	

Total = Total # of Items Performed

Actual = # of Items Performed that Met Measure

Points = Actual/Total * Weight

		Less than 75%			
F		Less than 75%			

	Statewide	Regional	Subregional	Division	County
Performance Target	B	B	C	NA	NA
Assessment Method	SI & Logs	SI & Logs	SI & Logs	SI & Logs	SI & Logs
Does Assessment Data exist	YES	YES	YES	YES	YES
Desired level of survey	Annual	Annual	Annual	Annual	Annual
Does Feature Inventory exist	YES	YES	YES	YES	YES
Desired level of Feature Inventory	YES	YES	YES	YES	YES

SI = Signal Inventory Program

Logs = System Logs

Issues

- Use System Logs and Signal Inventory Program to collect data
- Else???
-

Questions?